

○ ON SECOND PLATFORM

#### RF RADIATION MEASUREMENT POINT LOCATIONS

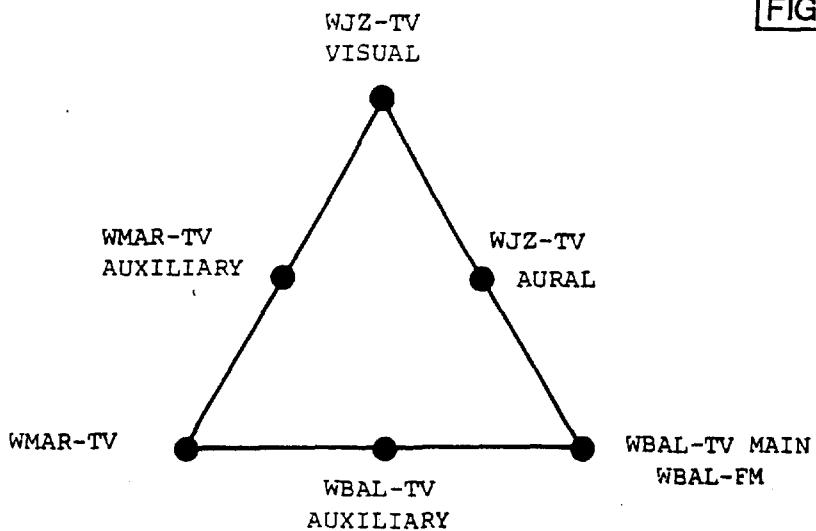
TTI TOWER

BALTIMORE, MARYLAND

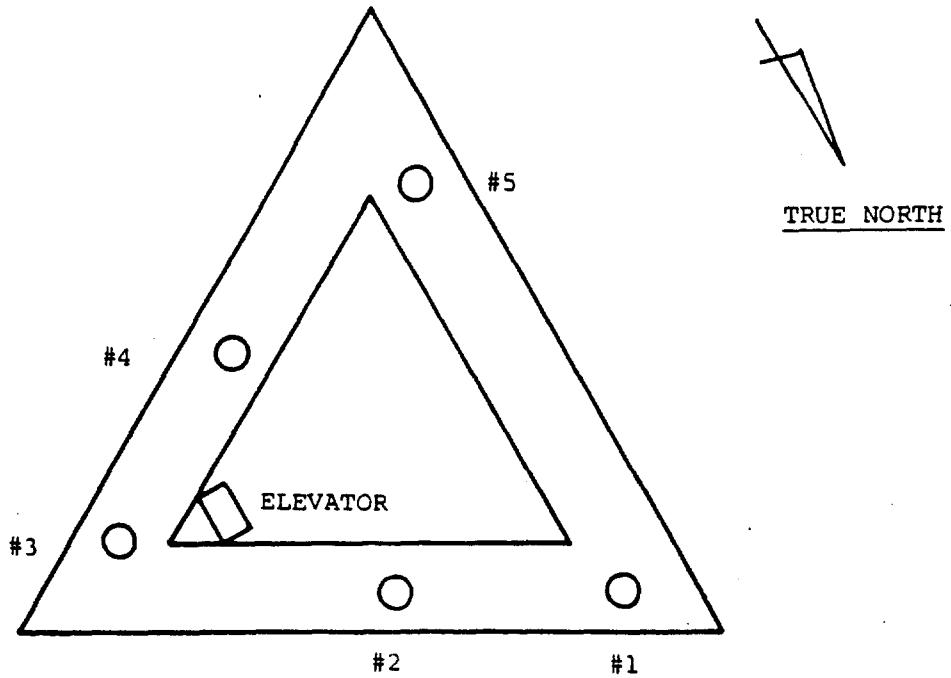
MARCH 1986

FIGURE 2

ANTENNA PLAN



PLATFORM PLAN



PLAN SHOWING BROAD BAND RADIATION MEASUREMENT  
LOCATIONS ON THE MICROWAVE PLATFORM  
AT THE 638 FOOT LEVEL ON THE  
WBAL-TV CANDLESTICK TOWER

COMPUTER STRUCTURAL ANALYSIS  
& ENGINEERING EVALUATION  
OF THE  
666 FT. GUYED TOWER  
CATONSVILLE, MARYLAND  
REVISED  
JANUARY 1992

FOR  
SCRIPPS HOWARD BROADCASTING COMPANY

BY  
VLISSIDES ENTERPRISES, INC.  
7601 BURFORD DRIVE  
MCLEAN, VIRGINIA 22102  
(703) 356-9504

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**SECTION A**

## INTRODUCTION

The subject structure is a 666 ft. guyed tower located in Catonsville, Maryland (Coordinates:  $39^{\circ} 17' 13''$ ;  $76^{\circ} 45' 16''$ ). The tower has a triangular cross-section with a face width of 4 ft. It is supported on a hinged base with seven guy levels of three guys each. The tower was designed and manufactured by Utility Tower Company in 1969.

The purpose of this analysis is to investigate the structural capability of the tower to support the Channel 2 TV antenna on top and its two 3-1/8" transmission lines, in addition to the existing antennas and transmission lines.

The following assumptions have been made regarding the major characteristics of the structural system employed in the design of the subject tower:

- a) Section panels were assumed to be approximately 5 ft. in height.
- b) The tower span lengths were estimated to be 93.5 ft., 95.2 ft., 95.2 ft., 95.2 ft., 94.5 ft., 95.2 ft. and 94.4 ft. for Spans #1 through #7 respectively.
- c) The inner and outer guy anchors were estimated to be at 262 ft. and 402 ft. distances from the tower respectively.
- d) The guy cables are E.H.S. cables with estimated diameters of 5/8", 5/8", 3/4", 5/8", 3/4", 7/8" and

- e) The tower legs were assumed to be of 3.5" O.D. with 0.300" wall thickness in the bottom 500 ft. of the tower and 0.216" wall thickness from 500 ft. to top.
- f) All the diagonal members were assumed to be solid rods of 5/8" diameter.
- g) All the horizontal girts were assumed to be solid rods of 1" in diameter.
- h) All the tower members were assumed made of 50,000 psi minimum yield strength steel.
- i) The tower sections are of all welded construction and are bolted together through round splice plates on each leg.
- j) The tower color banding is in accordance with the FAA Advisory Circular 70/7460-1H for towers under 700 ft. height.

The overall structural system of the tower resists the guy reactions, the wind loads and bending moments by having the legs in tension or compression; the diagonals in tension; and the girts in compression. The structural integrity of the tower depends mainly on the buckling load capacity of the legs and girts and the tension load capacity of the diagonals and guy cables.

The subject tower was analyzed under a 75 mph basic

## ORGANIZATION OF ANALYSIS

1. The following rigorous computer analysis was performed where the tower was analyzed with the use of a high capacity proprietary program, on a Digital VAX-11/730 computer, as beam-column on elastic supports. All secondary effects such as external moments produced by the guys at each level and those produced by beam-column action were taken into consideration. In addition, thermal gradients, wind escalation, wind thrusts on the tower and appurtenances, gravity loads, as well as drag and lift wind forces on the guys, were solved simultaneously by the computer program using the finite element method. The tower was analyzed with the wind direction normal to a tower face (Wind A); normal to a tower apex (Wind B); and parallel to a tower face (Wind C).

- a) Case 2. Tower in its assumed configuration under a 75 mph basic wind velocity and no ice, in accordance with EIA/TIA Standard 222-E specifications and the following antenna and transmission line loading:

<u>Antenna</u>	<u>Elev. (Ft.)</u>	<u>Transmission Line</u>
Yagi	29 ft.	7/8" Heliax
Whip	98 ft.	7/8" Heliax
Whip	119 ft.	7/8" Heliax
3-Bay Communication	180 ft.	1-5/8" Heliax
8-Element	190 ft.	1-5/8" Heliax
4' Dish w/Radome	230 ft.	1-5/8" Heliax
Whip	289 ft.	7/8" Heliax
Whip	363 ft.	7/8" Heliax
Whip	375 ft.	7/8" Heliax
Whip	393 ft.	7/8" Heliax
Whip	402 ft.	7/8" Heliax
Whip	403 ft.	7/8" Heliax

<b>Whip</b>	486 ft.	7/8" Heliax
<b>Whip</b>	501 ft.	7/8" Heliax
<b>Whip</b>	511 ft.	7/8" Heliax
<b>Whip</b>	523 ft.	7/8" Heliax
<b>Whip</b>	537 ft.	7/8" Heliax
<b>Long Whip</b>	549 ft. to 629 ft.	1-5/8" Heliax
<b>2-Bay FM</b>	645 ft.	3" Heliax
<b>Whip</b>	650 ft. Top	7/8" Heliax 1" Conduit
<b>Alan Dick</b>	Top	(2) 3-1/8" Rigid
<b>Superturnstile</b>		Coax
<b>Channel 2</b>		

The type, size, location and number of antennas and transmission lines were taken from sketch of tower prepared by Gerhold, Cross & Etzel, Professional Land Surveyors, Dated 1/20/92. The type of Channel 2 antenna and its transmission lines were assumed.

2. For all computer runs the results are given as follow:

- a) Tower loads, kips.
- b) Guy weights, kips.
- c) Guy unstressed length, feet.
- d) Guy forces and reactions, kips.
- e) Spring constants for wind and normal to wind directions.

- f) Column buckling evaluation parameter for the tower shaft between guy levels.
- g) Tower deflections with the tower bending in two directions (if unsymmetrical loads exist) at each tower shaft panel point.
- h) Tower reactions, moments and vertical loads for the wind and normal to wind directions.
- i) Shears and forces (tension or compression) in all tower structural members.

3. Allowable Member Loads & Guy Cable Safety Factors:

- a) Allowable Member Loads: For towers less than 700 ft. in height, in accordance with the provisions of EIA/TIA Standard 222-E, the allowable member loads calculated based on the AISC Manual of Steel Construction Formulas may be increased by a factor of 1.33.
- b) Allowable Guy Cable Safety Factors: For towers less than 700 ft. in height, in accordance with EIA/TIA Standard 222-E, the guy cable minimum safety factor requirement is 2.00.

## FINDINGS & EVALUATION

A structural study of the assumed tower geometry, member sizes and the computer analysis of Case 2 indicates the following:

1. Under Case 2. Tower in its assumed configuration and antenna and transmission line loading as described in the Organization of Analysis Section of this Report, under a 75 mph basic wind velocity and no ice in accordance with EIA/TIA Standard 222-E.
  - a) The tower legs are overstressed in 60% of the tower by as much as 84%.
  - b) The deflection at the top of the tower is too excessive compared to the rest of the tower. This results in uneven distribution of bending moments in the tower and large overstresses in the tower legs.
2. It is my engineering opinion that, due to the large overstresses calculated in the tower legs, the subject tower is not adequately designed to support the Channel 2 antenna and its transmission lines as described in the Organization of Analysis Section of this Report. Therefore, I strongly recommend that the subject tower must not be used for the installation of the Channel 2 Antenna.
3. The Findings presented in this section are based on the assumed tower geometry, member sizes and properties, guy cable sizes, and the antenna and transmission line loading described herein.

4. The tower height, span lengths, guy anchor distances and the antenna loading were taken from the sketch of tower prepared by Gerhold, Cross & Etzel, Professional Land Surveyors, dated 1/20/92.

No ice loading was considered in this analysis. Any significant icing of the tower and its guy cables, in addition to wind loading specified for this geographical area, will put the tower and surrounding area in serious danger.

The Computer Analysis Results show the safety factors of the guys and the deflection curve for the tower under Case 2. The Computer Analysis Results also list the maximum leg and diagonal loads per tower section.

#### **REPLACEMENT TOWER**

The engineering estimate to build a new tower 666 ft. in height on the same site to support the Channel 2 antenna, in accordance with EIA/TIA Standard 222-E, is \$350,000.00.

Due to the nature of this Engineering Investigation, I disclaim any liability arising from original design, geometry, material, fabrication and erection deficiencies or the "As Built" condition of the tower. Furthermore, the information and conclusions contained in this Report were determined by application of the current "state-of-the-art" engineering and analysis procedures and formulae, and Vlissides Enterprises, Inc. (Matthew J. Vlissides, P.E.) assumes no obligations to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will Vlissides Enterprises, Inc. (Matthew J. Vlissides, P.E.) have any obligations, responsibility or liability whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in this Report.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

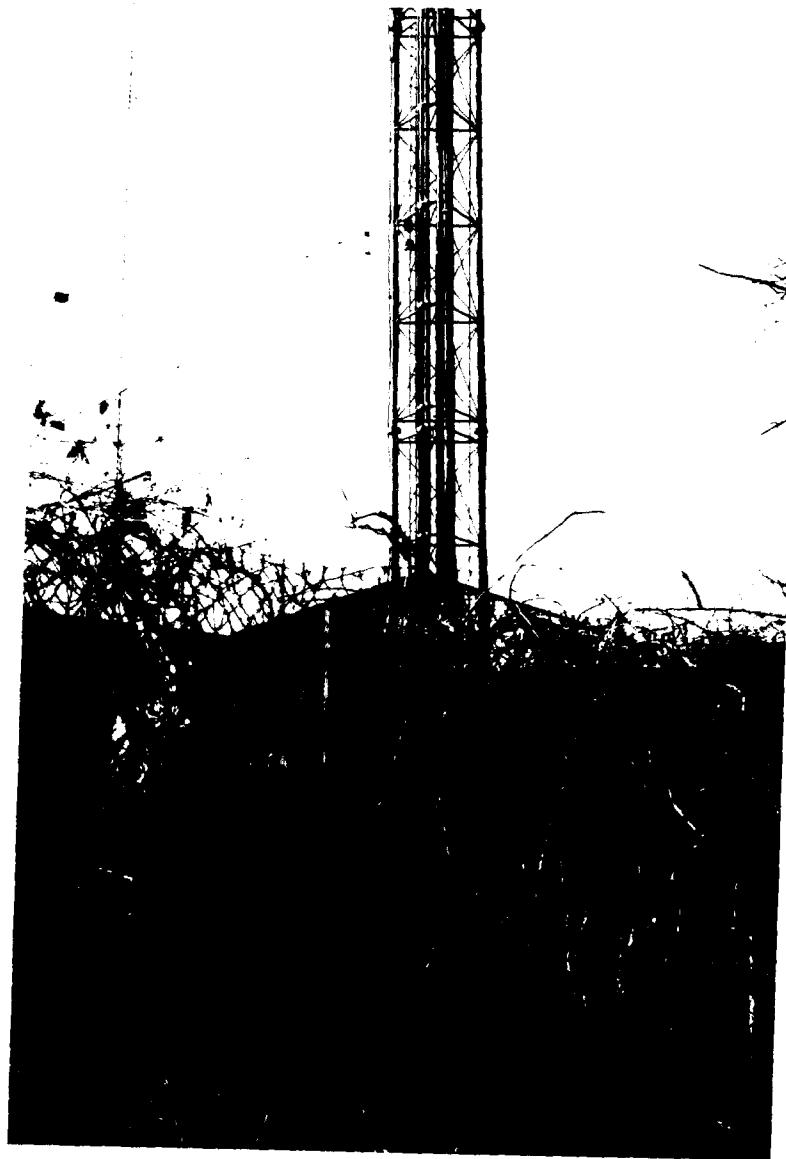


*Matthew J. Vlissides, P.E.*  
1-27-92

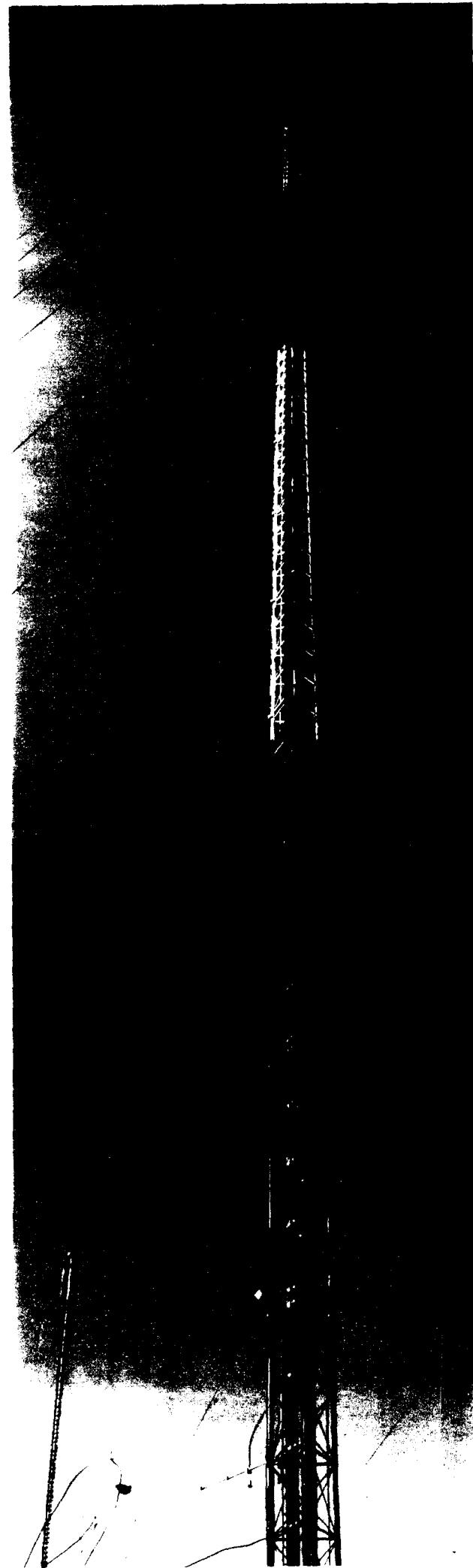
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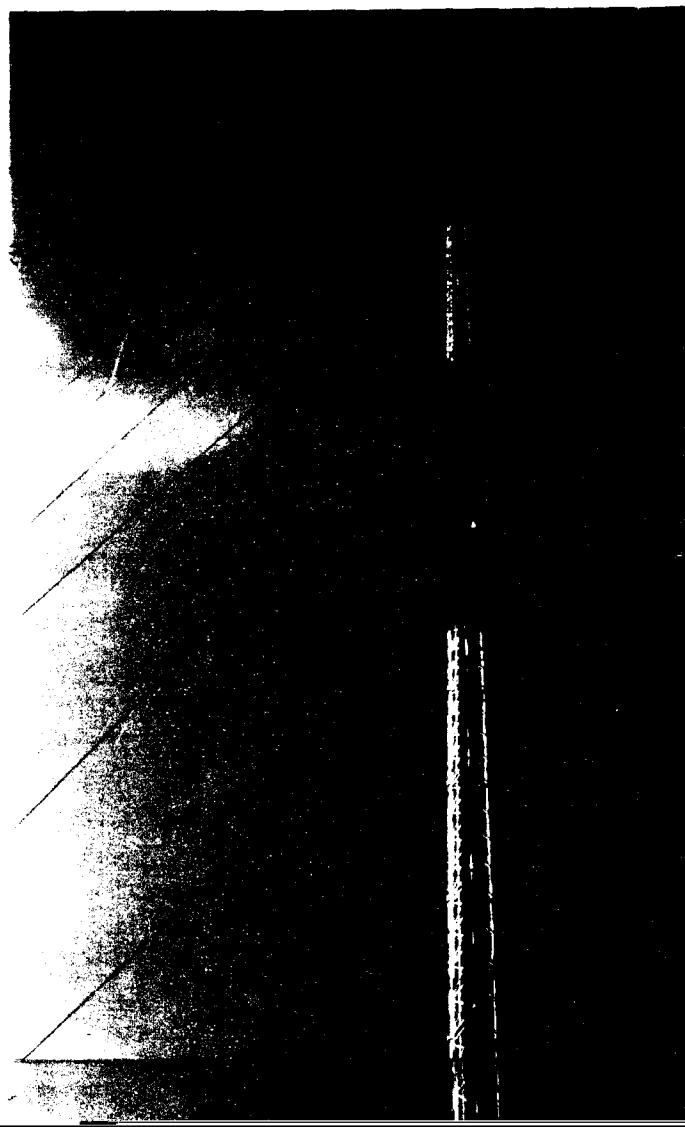
Matthew J. Vlissides, P.E.  
Engineering Consultant

**PHOTOGRAPHS**









**SECTION B**

PART I  
COMPUTER INPUT CALCULATIONS

'COMTRAN/ GUYED TOWER ANALYSIS  
JOB: 666 Ft. Guyed Tower, REVISED ANALYSIS, 75 MPH Basic Velo., FIA/TIA 222E

3 SIDES  
7 SPANS  
33 SECTIONS  
MISC 5.00% WEIGHT  
MISC 2.00% AREA  
BASE PIER ELEVATION = 1.00  
GUST RESPONSE FACTOR (Gh) = 1.04  
BASIC WIND VELOCITY = 75.00  
WIND ANGLE = 0  
THIS RUN USED VERSION FIA 222-E

SPAN DATA

SPAN	LENGTH (FT)	WIND PRES (PSF)	WEIGHT (KIPS)	WIND LOAD (KIPS)	AVERAGE I (INFT)**2	SYST TYPE	TORS STIFF (KIP-FT)
1	93.500	16.928	5.098	1.977	24.209	N	104.230
2	95.167	22.655	5.155	2.683	24.209	N	104.230
3	95.167	26.295	5.155	3.114	24.209	N	104.230
4	95.167	28.975	5.155	3.431	24.209	N	104.230
5	94.500	31.138	5.119	3.462	24.209	N	104.230
6	95.167	32.978	4.563	3.905	19.550	N	104.230
7	94.432	34.591	4.294	4.055	17.891	N	104.230

SECTION DATA

SEC	PANEL HT (FT)	FACE WDTH (FT)	LENGTH (FT)	SHAPE FACTOR CF	SOL-RATIO e	ROUND S/F Rr
1	5.000	4.000	18.500	2.583	0.209	0.591
2	5.000	4.000	20.000	2.583	0.204	0.591
3	5.000	4.000	20.000	2.583	0.204	0.591
4	5.000	4.000	20.000	2.583	0.204	0.591
5	5.000	4.000	20.000	2.583	0.204	0.591
6	5.000	4.000	20.000	2.583	0.204	0.591
7	5.000	4.000	20.000	2.583	0.204	0.591
8	5.000	4.000	20.000	2.583	0.204	0.591
9	5.000	4.000	20.000	2.583	0.204	0.591
10	5.000	4.000	20.000	2.583	0.204	0.591
11	5.000	4.000	20.000	2.583	0.204	0.591
12	5.000	4.000	20.000	2.583	0.204	0.591
13	5.000	4.000	20.000	2.583	0.204	0.591
14	5.000	4.000	20.000	2.583	0.204	0.591
15	5.000	4.000	20.000	2.583	0.204	0.591
16	5.000	4.000	20.000	2.583	0.204	0.591
17	5.000	4.000	20.000	2.583	0.204	0.591
18	5.000	4.000	20.000	2.583	0.204	0.591
19	5.000	4.000	20.000	2.583	0.204	0.591
20	5.000	4.000	20.000	2.583	0.204	0.591
21	5.000	4.000	20.000	2.583	0.204	0.591
22	5.000	4.000	20.000	2.583	0.204	0.591
23	5.000	4.000	20.000	2.583	0.204	0.591
24	5.000	4.000	20.000	2.583	0.204	0.591
25	5.000	4.000	20.000	2.583	0.204	0.591
26	5.000	4.000	20.000	2.583	0.204	0.591
27	5.000	4.000	20.000	2.583	0.204	0.591
28	5.000	4.000	20.000	2.583	0.204	0.591
29	5.000	4.000	20.000	2.583	0.204	0.591
30	5.000	4.000	20.000	2.583	0.204	0.591
31	5.000	4.000	20.000	2.583	0.204	0.591
32	5.000	4.000	20.000	2.583	0.204	0.591
33	5.000	4.000	24.600	2.582	0.204	0.591

## 666 Ft. Guyed Tower, REVISED ANALYSIS, 75 MPH Basic Velo., EIA/TIA 222E

## MEMBER DATA: LEGS

SEC	LEG	DIMENSIONS (IN)	XSECT (SQIN)	I (IN**4)	POUNDS PER FT	SQFT PER FT
1	PIPE	3.500x 0.300	3.016	3.894	10.263	0.173
2	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
3	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
4	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
5	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
6	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
7	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
8	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
9	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
10	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
11	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
12	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
13	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
14	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
15	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
16	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
17	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
18	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
19	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
20	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
21	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
22	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
23	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
24	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
25	PIPE	3.500x 0.300	3.016	3.894	10.263	0.172
26	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172
27	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172
28	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172
29	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172
30	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172
31	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172
32	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172
33	PIPE	3.500x 0.216	2.228	3.017	7.583	0.172

## MEMBER DATA: DIAGONALS

SEC	DIAG	DIMENSIONS (IN)	POUNDS PER FT	SQFT PER FT	PCS
1	ROD	0.625	1.044	0.031	24
2	ROD	0.625	1.044	0.031	24
3	ROD	0.625	1.044	0.031	24
4	ROD	0.625	1.044	0.031	24
5	ROD	0.625	1.044	0.031	24
6	ROD	0.625	1.044	0.031	24
7	ROD	0.625	1.044	0.031	24
8	ROD	0.625	1.044	0.031	24
9	ROD	0.625	1.044	0.031	24
10	ROD	0.625	1.044	0.031	24
11	ROD	0.625	1.044	0.031	24
12	ROD	0.625	1.044	0.031	24
13	ROD	0.625	1.044	0.031	24
14	ROD	0.625	1.044	0.031	24
15	ROD	0.625	1.044	0.031	24
16	ROD	0.625	1.044	0.031	24
17	ROD	0.625	1.044	0.031	24
18	ROD	0.625	1.044	0.031	24
19	ROD	0.625	1.044	0.031	24
20	ROD	0.625	1.044	0.031	24
21	ROD	0.625	1.044	0.031	24
22	ROD	0.625	1.044	0.031	24
23	ROD	0.625	1.044	0.031	24
24	ROD	0.625	1.044	0.031	24
25	ROD	0.625	1.044	0.031	24
26	ROD	0.625	1.044	0.031	24
27	ROD	0.625	1.044	0.031	24
28	ROD	0.625	1.044	0.031	24
29	ROD	0.625	1.044	0.031	24
30	ROD	0.625	1.044	0.031	24
31	ROD	0.625	1.044	0.031	24
32	ROD	0.625	1.044	0.031	24
33	ROD	0.625	1.044	0.031	30

## 666 Ft. Guyed Tower, REVISED ANALYSIS, 75 MPH Basic Velo., EIA/TIA 222E

## MEMBER DATA: HORIZONTALS

SEC	HORIZ TYPE	DIMENSIONS (IN)	POUNDS PER FT	SQFT PER FT	PCS
1	ROD	1.000	2.673	0.049	15
2	ROD	1.000	2.673	0.049	15
3	ROD	1.000	2.673	0.049	15
4	ROD	1.000	2.673	0.049	15
5	ROD	1.000	2.673	0.049	15
6	ROD	1.000	2.673	0.049	15
7	ROD	1.000	2.673	0.049	15
8	ROD	1.000	2.673	0.049	15
9	ROD	1.000	2.673	0.049	15
10	ROD	1.000	2.673	0.049	15
11	ROD	1.000	2.673	0.049	15
12	ROD	1.000	2.673	0.049	15
13	ROD	1.000	2.673	0.049	15
14	ROD	1.000	2.673	0.049	15
15	ROD	1.000	2.673	0.049	15
16	ROD	1.000	2.673	0.049	15
17	ROD	1.000	2.673	0.049	15
18	ROD	1.000	2.673	0.049	15
19	ROD	1.000	2.673	0.049	15
20	ROD	1.000	2.673	0.049	15
21	ROD	1.000	2.673	0.049	15
22	ROD	1.000	2.673	0.049	15
23	ROD	1.000	2.673	0.049	15
24	ROD	1.000	2.673	0.049	15
25	ROD	1.000	2.673	0.049	15
26	ROD	1.000	2.673	0.049	15
27	ROD	1.000	2.673	0.049	15
28	ROD	1.000	2.673	0.049	15
29	ROD	1.000	2.673	0.049	15
30	ROD	1.000	2.673	0.049	15
31	ROD	1.000	2.673	0.049	15
32	ROD	1.000	2.673	0.049	15
33	ROD	1.000	2.673	0.049	18

## MEMBER DATA: REDUNDANT MEMBERS AND ANCILLARY ITEMS

SEC	RNDG TYPE	DIMENSIONS (IN)	POUNDS PER FT	SQFT PER FT	PCS	ANCILL WT (K)	ANCILL A (SQFT)
1	NONE		0.000	0.000	0	0.100	0.000
2	NONE		0.000	0.000	0	0.100	0.000
3	NONE		0.000	0.000	0	0.100	0.000
4	NONE		0.000	0.000	0	0.100	0.000
5	NONE		0.000	0.000	0	0.100	0.000
6	NONE		0.000	0.000	0	0.100	0.000
7	NONE		0.000	0.000	0	0.100	0.000
8	NONE		0.000	0.000	0	0.100	0.000
9	NONE		0.000	0.000	0	0.100	0.000
10	NONE		0.000	0.000	0	0.100	0.000
11	NONE		0.000	0.000	0	0.100	0.000
12	NONE		0.000	0.000	0	0.100	0.000
13	NONE		0.000	0.000	0	0.100	0.000
14	NONE		0.000	0.000	0	0.100	0.000
15	NONE		0.000	0.000	0	0.100	0.000
16	NONE		0.000	0.000	0	0.100	0.000
17	NONE		0.000	0.000	0	0.100	0.000
18	NONE		0.000	0.000	0	0.100	0.000
19	NONE		0.000	0.000	0	0.100	0.000
20	NONE		0.000	0.000	0	0.100	0.000
21	NONE		0.000	0.000	0	0.100	0.000
22	NONE		0.000	0.000	0	0.100	0.000
23	NONE		0.000	0.000	0	0.100	0.000
24	NONE		0.000	0.000	0	0.100	0.000
25	NONE		0.000	0.000	0	0.100	0.000
26	NONE		0.000	0.000	0	0.100	0.000
27	NONE		0.000	0.000	0	0.100	0.000
28	NONE		0.000	0.000	0	0.100	0.000
29	NONE		0.000	0.000	0	0.100	0.000
30	NONE		0.000	0.000	0	0.100	0.000
31	NONE		0.000	0.000	0	0.100	0.000
32	NONE		0.000	0.000	0	0.100	0.000
33	NONE		0.000	0.000	0	0.100	0.000

\$

/TPREP/ TRANSMISSION LINE PREPARATION  
 JOB: 666' Guyed Tower, REVISED ANALYSIS, 75 Mph Basic Vel., EIA/TIA 222E

24 TRANSMISSION LINES

7 SPANS

BASIC WIND VELOCITY: 75.000  
 ICE RADIUS : 0.000  
 GUST RESPONCE (GH) : 1.041  
 BASEPIER ELEVATION : 1.000  
 THIS RUN USED FIA 222-E

TRANSMISSION LINE DATA

NO	DESCRIPTION	LBS/FT	SQFT/FT	EXPOSURE (%)	ELEVATION (FT)	
					LOWER	UPPER
1	LADDER	5.00	0.2250	100.00	10.00	664.00
2	3-1/8" R.C.	2.60	0.3125	100.00	10.00	664.00
3	3-1/8" R.C.	2.60	0.3125	100.00	10.00	664.00
4	1" COND.	1.68	0.1315	100.00	10.00	664.00
5	7/8" HELIAX	0.54	0.1110	100.00	10.00	650.00
6	3" HELIAX	1.80	0.3070	100.00	10.00	638.00
7	1-5/8" HELIAX	1.04	0.1980	100.00	10.00	520.00
8	7/8" HELIAX	0.54	0.1110	100.00	10.00	537.00
9	7/8" HELIAX	0.54	0.1110	100.00	10.00	523.00
10	7/8" HELIAX	0.54	0.1110	100.00	10.00	511.00
11	7/8" HELIAX	0.54	0.1110	75.00	10.00	501.00
12	7/8" HELIAX	0.54	0.1110	75.00	10.00	486.00
13	7/8" HELIAX	0.54	0.1110	75.00	10.00	403.00
14	7/8" HELIAX	0.54	0.1110	75.00	10.00	402.00
15	7/8" HELIAX	0.54	0.1110	50.00	10.00	393.00
16	7/8" HELIAX	0.54	0.1110	50.00	10.00	375.00
17	7/8" HELIAX	0.54	0.1110	50.00	10.00	363.00
18	7/8" HELIAX	0.54	0.1110	25.00	10.00	289.00
19	1-5/8" HELIAX	1.04	0.1980	25.00	10.00	230.00
20	1-5/8" HELIAX	1.04	0.1980	25.00	10.00	190.00
21	1-5/8" HELIAX	1.04	0.1980	25.00	10.00	170.00
22	7/8" HELIAX	0.54	0.1110	25.00	10.00	119.00
23	7/8" HELIAX	0.54	0.1110	25.00	10.00	98.00
24	7/8" HELIAX	0.54	0.1110	0.00	10.00	30.00

SPAN DATA

SPAN	LENGTH (FT)	WIND PRES (PSF)	XMSN WT (KIPS)	WTNP LOAD (KIPS)
1	93.300	16.928	2.132	3.757
2	95.167	22.655	2.311	5.608
3	95.167	26.295	2.062	6.196
4	95.167	28.975	1.958	6.662
5	94.500	31.138	1.730	6.305
6	95.167	32.978	1.555	5.662
7	94.432	34.591	1.302	4.323

/OMNIDAT/ REMAINING TOWER INPUT DATA  
JOB# 646' Guyed Tower, REVISED ANALYSIS, 75 MPH basic Vel., EIA/TIA 222E

2 CARD DATA: BASIC INFORMATION

7 GUY LEVELS

HINGED BASE

0.000 INCH RADIAL ICE ON GUYS

AMBIENT TEMPERATURE = 30.0 DEG F

INTERMEDIATE LOADS ARE CONSIDERED

NO INSULATORS ARE CONSIDERED

3 CARD DATA: GUY LEVEL INFORMATION

LVL	# GUYS	AVERAGE WIND AT LVL VELOCITY (MI/HR)	CONCENTRATED LOADS (KIPS)	
			WEIGHT	WIND LOAD
1	3	81.200	0.00	0.00
2	3	87.900	0.00	0.00
3	3	92.600	0.00	0.00
4	3	96.200	0.00	0.00
5	3	99.200	0.00	0.00
6	3	101.700	0.00	0.00
7	3	103.900	0.00	0.00

LVL	MOMENTS (KIP-FT)						TORQUES (KIP-FT)		
	WINDWARD DIRECTION			NORMAL DIRECTION					
	A	B	C	A	B	C	A	B	C
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4 CARD DATA: GUY AND LEVER ARM ANGLES

LVL	GUY #	ANGLE GUY MAKES W/WIND (DEG)		ANGLE LEVER ARM MAKES W/WIND (DEG)		
	WIND A	WIND B	WIND C	WIND A	WIND B	WIND C
1	ALL	40.00	0.00	30.00	LEVER ARM ANGLE INFO NOT REQD	
2	ALL	60.00	0.00	30.00	LEVER ARM ANGLE INFO NOT REQD	
3	ALL	60.00	0.00	30.00	LEVER ARM ANGLE INFO NOT REQD	
4	ALL	60.00	0.00	30.00	LEVER ARM ANGLE INFO NOT REQD	
5	ALL	60.00	0.00	30.00	LEVER ARM ANGLE INFO NOT REQD	
6	ALL	60.00	0.00	30.00	LEVER ARM ANGLE INFO NOT REQD	
7	ALL	60.00	0.00	30.00	LEVER ARM ANGLE INFO NOT REQD	